

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number
WO 2004/108937 A1

(51) International Patent Classification⁷: C12N 15/86

(21) International Application Number:
PCT/KR2004/001341

(22) International Filing Date: 4 June 2004 (04.06.2004)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2003-0035993 4 June 2003 (04.06.2003) KR

(71) Applicants (for all designated States except US): **BI-OLEADERS CORPORATION** [KR/KR]; 408-1, Sajeong-dong, Jung-gu, Daejeon 301-212 (KR). **M.D. LAB** [KR/KR]; The college of veterinary medicine, Chungnam University, 220 Gung-dong, Yuseong-gu, Daejeon 305-764 (KR). **BIOLEADERS JAPAN CORP.** [JP/JP]; 403, AS ONE R & D Center, 4-15-5 Tenma, Kita-ku, Osaka 530-0043 (JP). **KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGY** [KR/KR]; 52, Eoeun-dong, Yuseong-gu, Daejeon 305-806 (KR).

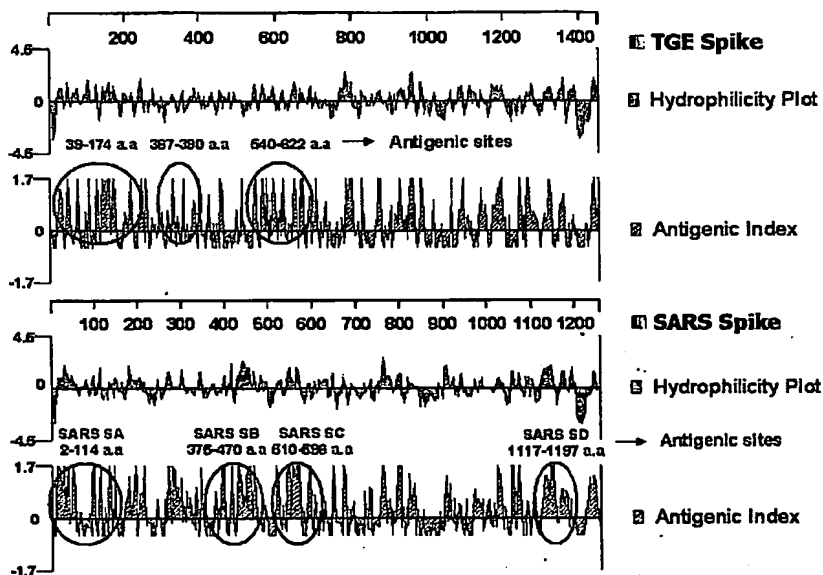
(72) Inventors; and

(75) Inventors/Applicants (for US only): **SUNG, Moon Hee** [KR/KR]; 302, Yabes, 325-6, Jangdae-dong, Yuseong-gu, Daejeon 305-308 (KR). **KIM, Chul Joong** [KR/KR]; 103-801, Samsung Hanul Apt., Sinseong-dong, Yuseong-gu, Daejeon 305-707 (KR). **JUNG, Chang Min** [KR/KR]; 132-15, Nonhyeon 1-dong, Gangnam-gu, Seoul 135-824 (KR). **HONG, Seung Pyo** [KR/KR]; 310-1503, Songgang Green Apt., Songgang-dong, Yuseong-gu, Daejeon 305-751 (KR). **LEE, Jong Su** [KR/KR]; 59, Nagwon-dong, Anseong-si, Gyeonggi-do 456-110 (KR). **CHOI, Jae Chul** [KR/KR]; 410-7, Naedang 4-dong, Seo-gu, Daegu 703-805 (KR). **KIM, Kwang** [KR/KR]; 103-506, Daelim Dure Apt., Sinseong-dong, Yuseong-gu, Daejeon 305-720 (KR). **SHUNICHI, Kuroda** [JP/JP]; 7-C-104, Kamiyamada, Suita, Osaka 565-0872 (JP). **POO, Ha Ryoung** [KR/KR]; 408-501, Yeolmae Maeul 4-Danji, 858, Jijok-dong, Yuseong-gu, Daejeon 305-770 (KR).

(74) Agent: **LEE, Cheo Young**; 4th Floor, Kyoung Sung Bldg., 641 Yeoksam-dong, Gangnam-gu, Seoul 135-080 (KR).

[Continued on next page]

(54) Title: CELL SURFACE EXPRESSION VECTOR OF SARS VIRUS ANTIGEN AND MICROORGANISMS TRANSFORMED THEREBY



(57) Abstract: The present invention relates to a surface expression vector of SARS coronavirus antigen containing a gene encoding an antigen of SARS inducing coronavirus and any one or two or more of genes pgsB, pgsC and pgsA encoding poly-gamma-glutamic acid synthase complex, a microorganism transformed by the surface expression vector, and a SARS vaccine comprising the microorganism. According to the present invention, it is possible to economically produce a vaccine for prevention and treatment of SARS using a recombinant strain expressing an SARS coronavirus antigen on their surface.

WO 2004/108937 A1



(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.